



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
-----------------	-------------	----------------------	---------------------	------------------

10/688,383

10/17/2003

Ie-Hong Lin

020292

2247

23696 7590 04/22/2008  
QUALCOMM INCORPORATED  
5775 MOREHOUSE DR.  
SAN DIEGO, CA 92121

EXAMINER

MILLER, BRANDON J

ART UNIT

PAPER NUMBER

2617

NOTIFICATION DATE

DELIVERY MODE

04/22/2008

ELECTRONIC

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

us-docketing@qualcomm.com  
kascanla@qualcomm.com  
nanm@qualcomm.com

<b>Office Action Summary</b>	<b>Application No.</b> 10/688,383	<b>Applicant(s)</b> LIN, IE-HONG	
	<b>Examiner</b> BRANDON J. MILLER	<b>Art Unit</b> 2617	

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 1/28/2008.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-27 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-27 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 10/17/2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)          | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____                                      |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)          | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____  | 6) <input type="checkbox"/> Other: _____                          |

**DETAILED ACTION**

***Response to Amendment***

***Disposition of Claims***

- I. Claims 1-27 remain pending in the application.

***Claim Rejections - 35 USC § 101***

35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

- II. Claim 27 is rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter. A computer program product is directed to non-statutory subject matter.

Data structures not claimed as embodied in computer-readable media are descriptive material per se and are not statutory because they are not capable of causing functional change in the computer. See, e.g., *Warmerdam*, 33 F.3d at 1361, 31 USPQ2d at 1760 (claim to a data structure per se held nonstatutory). Such claimed data structures do not define any structural and functional interrelationships between the data structure and other claimed aspects of the invention which permit the data structure's functionality to be realized.

In contrast, a claimed computer-readable medium encoded with a data structure defines structural and functional interrelationships between the data structure and the computer software and hardware components which permit the data structure's functionality to be realized, and is thus statutory.

Similarly, computer programs claimed as computer listings per se, i.e., the descriptions or expressions of the programs, are not physical “things.” They are neither computer components nor statutory processes, as they are not “acts” being performed. Such claimed computer programs do not define any structural and functional interrelationships between the computer program and other claimed elements of a computer which permit the computer program’s functionality to be realized. In contrast, a claimed computer-readable medium encoded with a computer program is a computer element which defines structural and functional interrelationships between the computer program and the rest of the computer which permit the computer program’s functionality to be realized, and is thus statutory. See *Lowry*, 32 F.3d at 1583-84, 32 USPQ2d at 1035. Accordingly, it is important to distinguish claims that define descriptive material per se from claims that define statutory inventions.

### ***Claim Rejections - 35 USC § 112***

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

III. Claim 1 is rejected under 35 U.S.C. 112, second paragraph, as being incomplete for omitting essential steps, such omission amounting to a gap between the steps. See MPEP § 2172.01. The omitted steps are: measuring or obtaining measured power for the received signal. Without the step of measuring or obtaining measured power for the received signal the transmitter for the received signal cannot be identified. Claims 2-12 are rejected based on their dependence of independent claim 1.

Claim 13 is rejected under 35 U.S.C. 112, second paragraph, as being incomplete for omitting essential steps, such omission amounting to a gap between the steps. See MPEP § 2172.01. The omitted steps are: identifying a transmitter; measuring power of the received signal; and measuring power for the identified transmitter. Without the step of first identifying a transmitter, predicted power for the identified transmitter cannot be obtained. Without the steps of measuring or obtaining measured power of the received signal and measuring or obtaining measured power for the identified transmitter, the transmitter for the received signal cannot be determined. Claims 14-18 are rejected based on their dependence of independent claim 13.

Claim 19 is rejected under 35 U.S.C. 112, second paragraph, as being incomplete for omitting essential elements, such omission amounting to a gap between the elements. See MPEP § 2172.01. The omitted elements are: means for measuring or obtaining measured power for the received signal. Without the means for measuring or obtaining measured power for the received signal the transmitter for each received signal cannot be identified. Claims 20-26 are rejected based on their dependence of independent claim 1.

Claim 27 is rejected under 35 U.S.C. 112, second paragraph, as being incomplete for omitting essential elements, such omission amounting to a gap between the elements. See MPEP § 2172.01. The omitted elements are: means for measuring or obtaining measured power for the received signal. Without the means for measuring or obtaining measured power for each received signal the transmitter for the received signal cannot be identified.

The following art rejection is based on the best possible interpretation of the claim language in light of the rejection under 35 U.S.C. 112, second paragraph.

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

IV. Claims 13-16, 19-20, 24, 26-27 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bourgoïn et al. (US 6,643,521 B1) in view of Dunn et al. (5,873,040).

Regarding claim 13 Bourgoïn teaches receiving a signal from transmitters in a wireless communication system (see col. 3, lines 12-15). Bourgoïn teaches obtaining a plurality of received signals for a plurality of transmitters (see col. 4, lines 51-52 and FIG. 1). Bourgoïn teaches determining a transmitter for each received signal (see col. 3, lines 12-15). Bourgoïn teaches determining a candidate transmitter for the received signal (see col. 3, lines 30-31 & 35-38). Bourgoïn teaches obtaining predicted power for each candidate transmitter in the list (see col. 3, lines 31-35). Bourgoïn teaches obtaining predicted power for an identified transmitter (see col. 3, lines 31-35). Bourgoïn teaches accepting the transmitter for the received signal based on predicted powers for the candidate transmitters and measured power for the received signal (see col. 4, lines 55-65). Bourgoïn does not specifically teach determining a list of candidate transmitters; determining the transmitter for the received signal based on predicted powers for the candidate transmitters, the predicted power for the identified transmitter, measured power of the received signal, and measured power for the identified transmitter. Bourgoïn does teach determining a candidate transmitter for the received signal (see col. 3, lines 30-31 & 35-38).

Art Unit: 2617

Bourgoin does teach predicting powers for candidate transmitters (see col. 3, lines 31-34) and measured power for received signals (see col. 4, lines 55-59). Dunn teaches determining transmitters in a wireless communication system (see col. 2, lines 42-51). It would have been obvious to one of ordinary skill in the art at the time the invention was made to make the device in Bourgoin adapt to include determining a list of candidate transmitters; determining the transmitter for the received signal based on predicted powers for the candidate transmitters, the predicted power for the identified transmitter, measured power of the received signal, and measured power for the identified transmitter because Bourgoin teaches determining candidate transmitters and the signals received from transmitters in Bourgoin inherently include identification information.

Regarding claim 14 Bourgoin and Dunn teach a device as recited in claim 13 except for comparing a relative predicted power for each candidate transmitter against a relative measured power for the received signal, the relative predicted power being a difference between the predicted power for the candidate transmitter and the predicted power for the identified transmitter, the relative measured power being a difference between the measured power of the received signal and the measured power for the identified transmitter, and wherein the identified transmitter for the received signal is the candidate transmitter with predicted power closest to the measured power. Bourgoin does teach determining a predicted power for each transmitter and determining a measured power for each transmitter (see col. 4, lines 55-65 and claim 1). Dunn teaches identifying transmitters in a wireless communication system (see col. 2, lines 42-51). It would have been obvious to one of ordinary skill in the art at the time the invention was made to make the device in Bourgoin adapt to include comparing a relative predicted power for

each candidate transmitter against a relative measured power for the received signal, the relative predicted power being a difference between the predicted power for the candidate transmitter and the predicted power for the identified transmitter, the relative measured power being a difference between the measured power of the received signal and the measured power for the identified transmitter, and wherein the identified transmitter for the received signal is the candidate transmitter with predicted power closest to the measured power because Bourgoin teaches determining candidate transmitters and the signals received from transmitters in Bourgoin inherently include identification information.

Regarding claim 15 Bourgoin and Dunn teach a device as recited in claim 3 and is rejected given the same reasoning as above.

Regarding claim 16 Bourgoin and Dunn teach a device as recited in claim 9 and is rejected given the same reasoning as above.

Regarding claim 19 Bourgoin teaches obtaining a plurality of received signals for a plurality of transmitters (see col. 4, lines 51-52 and FIG. 1). Bourgoin teaches determining a candidate transmitter for the received signal (see col. 3, lines 30-31 & 35-38). Bourgoin teaches obtaining predicted power for each candidate transmitter in the list (see col. 3, lines 31-35). Bourgoin teaches accepting the transmitter for the received signal based on predicted powers for the candidate transmitters and measured power for the received signal (see col. 4, lines 55-65). Bourgoin does not specifically teach determining a candidate list for the received signal and determining and/or identifying transmitters in a wireless communication system. Bourgoin does teach determining a candidate transmitter for the received signal (see col. 3, lines 30-31 & 35-38). Dunn teaches identifying transmitters in a wireless communication system (see col. 2, lines



42-51). It would have been obvious to one of ordinary skill in the art at the time the invention was made to make the device in Bourgoïn adapt to include determining a candidate list for the received signal and determining and/or identifying transmitters in a wireless communication system because Bourgoïn teaches determining candidate transmitters and the signals received from transmitters in Bourgoïn inherently include identification information.

Regarding claim 20 Bourgoïn and Dunn teach a device as recited in claim 3 and is rejected given the same reasoning as above.

Regarding claim 24 Bourgoïn and Dunn teach a device as recited in claim 19 except for wherein the transmitter for each received signal is further identified based on predicted power for the identified transmitter for the received signal. Bourgoïn does teach accepting the transmitter for the received signal based on predicted powers for the candidate transmitters and measured power for the received signal (see col. 4, lines 55-65). Dunn does teach identifying transmitters in a wireless communication system (see col. 2, lines 42-51). It would have been obvious to one of ordinary skill in the art at the time the invention was made to make the device in Bourgoïn adapt to include wherein the transmitter for each received signal is further identified based on predicted power for the identified transmitter for the received signal because Bourgoïn teaches determining candidate transmitters and the signals received from transmitters in Bourgoïn inherently include identification information.

Regarding claim 26 Bourgoïn and Dunn teach a device as recited in claim 9 and is rejected given the same reasoning as above.

Regarding claim 27 Bourgoïn teaches obtaining a plurality of received signals for a plurality of transmitters (see col. 4, lines 51-52 and FIG. 1). Bourgoïn teaches determining a

Art Unit: 2617

candidate transmitter for the received signal (see col. 3, lines 30-31 & 35-38). Bourgoin teaches obtaining predicted power for each candidate transmitter in the list (see col. 3, lines 31-35).

Bourgoin teaches accepting the transmitter for the received signal based on predicted powers for the candidate transmitters and measured power for the received signal (see col. 4, lines 55-65).

Bourgoin does not specifically teach determining and/or identifying transmitters in a wireless communication system and determining a plurality of lists of candidate transmitters, one candidate list for each received signal. Bourgoin does teach determining a candidate transmitter for the received signal (see col. 3, lines 30-31 & 35-38). Dunn teaches identifying transmitters in a wireless communication system (see col. 2, lines 42-51). Dunn teaches a computer program product and a computer-usable medium for storing codes (see abstract and col. 4, lines 62-65). It would have been obvious to one of ordinary skill in the art at the time the invention was made to make the device in Bourgoin adapt to include determining and/or identifying transmitters in a wireless communication system and determining a plurality of lists of candidate transmitters, one candidate list for each received signal because Bourgoin teaches determining candidate transmitters and the signals received from transmitters in Bourgoin inherently include identification information.

V. Claims 17-18, 21-23, and 25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bourgoin et al. (US 6,643,521 B1) in view of Dunn et al. (5,873,040) and Kennedy, Jr. et al. (US 6,920,329 B2).

Regarding claim 17 Bourgoin and Dunn teach a device as recited in claim 13 except for obtaining predicted propagation delay for each candidate transmitter in the list, obtaining predicted propagation delay for the identified transmitter, and wherein the transmitter for the received signal is further identified based on predicted propagation delays for the candidate transmitter, predicated propagation delays for the identified transmitter, measured propagation delay for the received signal, and measured propagation delays for the identified transmitter. Kennedy, Jr. does teach obtaining predicted propagation delay for transmitters, wherein the transmitter is further identified based on predicted propagation delays for the candidate transmitter (see col. 4, lines 27-31 & 54-61). Dunn teaches identifying transmitters in a wireless communication system based on measured conditions (see col. 2, lines 42-51). It would have been obvious to one of ordinary skill in the art at the time the invention was made to make the device adapt to include obtaining predicted propagation delay for each candidate transmitter in the list, obtaining predicted propagation delay for the identified transmitter, and wherein the transmitter for the received signal is further identified based on predicted propagation delays for the candidate transmitter, predicated propagation delays for the identified transmitter, measured propagation delay for the received signal, and measured propagation delays for the identified transmitter because this would allow for the transmitters in Bourgoin to have improved communication with neighboring cells.

Regarding claim 18 Bourgoïn and Dunn teach a device as recited in claim 17 except for determining a relative power delta for each candidate transmitter, determining a relative propagation delay delta for each candidate transmitter, and obtaining a weighted sum of the relative power delta and the relative propagation delay delta for each candidate transmitter, and wherein the identified transmitter for the received signal is the candidate transmitter with a smallest weighted sum. Kennedy, Jr. does teach determining a propagation delay for each candidate transmitter (see col. 4, lines 27-31 & 54-61). Kennedy, Jr. does teach obtaining a weighted sum of the propagation delay for each candidate transmitter, and identifying a candidate transmitter for a received signal (see col. 4, lines 55-61 and col. 6, lines 13-20). Dunn teaches identifying transmitters in a wireless communication system based on measured conditions (see col. 2, lines 42-51). It would have been obvious to one of ordinary skill in the art at the time the invention was made to make the device adapt to include determining a relative power delta for each candidate transmitter, determining a relative propagation delay delta for each candidate transmitter, and obtaining a weighted sum of the relative power delta and the relative propagation delay delta for each candidate transmitter, and wherein the identified transmitter for the received signal is the candidate transmitter with a smallest weighted sum because this would allow for the transmitters in Bourgoïn to have improved communication with neighboring cells.

Regarding claim 21 Bourgoïn, Dunn, and Kennedy, Jr. teach a device as recited in claim 6 and is rejected given the same reasoning as above.

Regarding claim 22 Bourgoïn, Dunn, and Kennedy, Jr. teach a device as recited in claim 7 and is rejected given the same reasoning as above.

Regarding claim 23 Kennedy, Jr. teaches means for storing information used for the path loss prediction model (see col. 4, lines 24-32).

Regarding claim 25 Bourgoin, Dunn, and Kennedy, Jr. teach a device as recited in claim 11 and is rejected given the same reasoning as above.

### ***Response to Arguments***

VI. Applicant's arguments with respect to claims 1-27 have been considered but are moot in view of the new ground(s) of rejection.

### ***Conclusion***

VII. Any inquiry concerning this communication or earlier communications from the examiner should be directed to BRANDON J. MILLER whose telephone number is (571)272-7869. The examiner can normally be reached on Mon.-Fri. 8:00 am to 5:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, George Eng can be reached on 571-272-7495. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Art Unit: 2617

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/George Eng/  
Supervisory Patent Examiner, Art Unit 2617

April 14, 2008

/Brandon J Miller/  
Examiner, Art Unit 2617